

CLAIMS

What is claimed is:

- 5 1. A method to enable a wireless device to provide recommendations to its user that are appropriate to the device's current environment, comprising:
 - receiving sensor signals characterizing a current environment of the wireless device;
 - 10 processing the sensor signals with a context inference engine;
 - outputting a current context result from the processing by the context inference engine;
 - 15 forming a context-activity pair by selecting an activity and pairing it with the current context result;
 - 20 searching a database of recommendations using the context-activity pair; and
 - providing recommendations to the user in response to the searching step.
- 25 2. The method of claim 1, wherein the processing of the sensor signals with a context inference engine is embodied as programmed instructions executed within the user's wireless device.
- 30 3. The method of claim 1, wherein the processing of the sensor signals with a context inference engine is embodied as programmed instructions executed within a separate network server in response to signals from the user's wireless device.
- 35 4. The method of claim 1, wherein the sensor signals are selected from the group consisting of positioning signals, touch signals, audio signals, compass signals, ambient light signals, ambient temperature signals, three-axis acceleration signals, time signals, and the device's operational mode signals.
- 40 5. The method of claim 3, wherein the wireless device offloads a portion of the processing of the sensor signals with a context inference engine to the server.
6. The method of claim 1, wherein the selecting of an activity is automatically performed in the wireless device.

7. The method of claim 1, wherein the selecting of an activity performed by the user in the wireless device.
- 5 8. The method of claim 3, wherein the signals from the user's wireless device are sent to the server without any user identification.
9. The method of claim 1, which further comprises:
10 providing the recommendation in a separate server in response to context-activity pair information received at the server from the user's wireless device.
- 15 10. The method of claim 9, which further comprises:
 maintaining the database as a context-activity pair database by the server;
 associating in the database the context-activity pair information with appropriate
20 recommendations made in the past to many users.
- 25 11. The method of claim 10, which further comprises:
 making new recommendations to the user in response to the context-activity pair information submitted by the wireless device; and
 gathering the new recommendations and adding them to the database;
30 whereby the variety, quality and pertinence of the recommendations in the database grows as the recommendation system is used.
- 35 12. The method of claim 11, which further comprises:
 compiling statistical usage information about the recommendations and storing the usage information in the database.
- 40 13. The method of claim 12, which further comprises:
 providing the statistical usage information to the wireless device accompanying the recommendations.

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14. The method of claim 13, which further comprises:

filtering the recommendations received at the wireless device by using the statistical usage information accompanying the recommendations.

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15. The method of claim 1, wherein said providing step further comprises:

filtering the recommendations at the wireless device using statistical usage information
10 associated with the recommendations.

16. The method of claim 1, wherein said providing step further comprises:

15 accessing a history log of previous recommendations provided to the user;

filtering new recommendations from the previous recommendations and providing the new
recommendations to the user.

20 17. The method of claim 1, wherein said providing step further comprises:

accessing a history log of previous recommendations provided to the user, including ratings of
the previous recommendations;

25 filtering recommendations using the ratings and providing the filtered recommendations to the
user.

30 18. The method of claim 1, which further comprises:

providing the recommendations to an application program.

35 19. The method of claim 3, which further comprises:

providing to the user control over the privacy of the user's information within the network server.

40 20. The method of claim 19, which further comprises:

maintaining the database as a context-activity pair database by the server, which contains no
personal information about the user;

- associating in the database the context-activity pair information with appropriate recommendations made in the past to many users.
- 5 21. The method of claim 20, which further comprises:
- making new recommendations to the user in response to the context-activity pair information submitted by the wireless device; and
- 10 gathering the new recommendations and adding them to the database without any personal information about the user.
- 15 22. An apparatus to enable a wireless device to provide recommendations to its user that is appropriate to the device's current environment, comprising:
- 20 a processor;
- 25 a memory coupled to the processor, programmed to perform the steps of:
- receiving sensor signals characterizing a current environment of the wireless device;
- processing the sensor signals with a context inference engine;
- 30 outputting a current context result from the processing by the context inference engine;
- forming a context-activity pair by selecting an activity and pairing it with the current context result;
- 35 causing a database of recommendations to be searched using the context-activity pair; and
- providing recommendations to the user in response to the searching step.
- 40 23. The apparatus of claim 22, wherein the processing of the sensor signals with a context inference engine is embodied as programmed instructions executed within the user's wireless device.
- 45 24. The apparatus of claim 22, wherein the processing of the sensor signals with a context inference engine is embodied as programmed instructions executed within a separate network server in response to signals from the user's wireless device.

25. A wireless device to provide recommendations to its user that is appropriate to the device's current environment, comprising:

a sensor for providing sensor signals characterizing a current environment of the wireless device;

5 a context inference engine coupled to the sensor, for processing the sensor signals;

said context inference engine providing a current context result from the processing;

10 a processor coupled to the context inference engine, for forming a context-activity pair by selecting an activity and pairing it with the current context result;

15 a database coupled to the processor, for providing recommendations using the context-activity pair; and

an output device coupled to the database, for providing the recommendations to the user in response to the context-activity pair.

20 26. A system to provide recommendations to the user of a wireless device that is appropriate to the device's current environment, comprising:

a sensor in the wireless device for providing sensor signals characterizing a current environment of the wireless device;

25 a processor coupled to the context inference engine, for forming a context-activity pair information by selecting an activity and pairing it with current sensor information derived from said sensor signals, said processor sending the context-activity pair information to a server;

30 a context inference engine in the server coupled to the wireless device, for processing the context-activity pair information, said context inference engine providing a current context result from the processing;

35 a database coupled to the processor, for providing recommendations using the current context-activity pair; and

an output device in the wireless device and coupled to the database, for providing the recommendations to the user.

40 27. A business method to enable a wireless device to provide recommendations to its user that are appropriate to the device's current environment, comprising:

characterizing a current environment of the wireless device with a current context result;

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- forming a context-activity pair by selecting an activity and pairing it with the current context result;
 - 5 accessing a database of recommendations using the context-activity pair without including any user personal data; and
- providing recommendations to the wireless device from the database.

- 10 28. The business method of claim 27, which further comprises:
- gathering the new recommendations and adding them to the database without including any user personal data.

- 15 29. The business method of claim 27, which further comprises:
- compiling statistical usage information about the recommendations and storing the usage information in the database.

- 20 30. The business method of claim 29, which further comprises:
- providing the statistical usage information to the wireless device accompanying the recommendations.

- 25 31. The business method of claim 27, which further comprises:
- 30 filtering the recommendations received at the wireless device by using the statistical usage information accompanying the recommendations.

- 35 32. The business method of claim 27, which further comprises:
- accessing a history log of previous recommendations provided to the user;
 - filtering new recommendations from the previous recommendations and providing the new recommendations to the user.

- 40 33. The business method of claim 27, which further comprises:
- accessing a history log of previous recommendations provided to the user, including ratings of the previous recommendations;

filtering recommendations using the ratings and providing the filtered recommendations to the user.

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34. The business method of claim 27, which further comprises:

providing the recommendations to an application program.

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35. The business method of claim 28, which further comprises:

providing at least portions of the database to a third party service provider.

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36. A method to enable a wireless device to provide recommendations to its user that are appropriate to the device's current environment, comprising:

receiving sensor signals characterizing a current environment of the wireless device;

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processing the sensor signals with a context inference engine to produce a set of current context results;

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forming a set of context-activity pairs by selecting an activity and pairing it with the set of current context results;

accessing a set of related service history items from a history log;

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forming context-activity pair information from the set of current context results and the set of related service history items;

searching a database of recommendations using the context-activity pair information; and

providing recommendations to the user in response to the searching step.

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37. The method of claim 36, which further comprises:

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providing the recommendation in a separate server in response to context-activity pair information received at the server from the user's wireless device.

38. The method of claim 37, which further comprises:

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maintaining the database as a context-activity pair database by the server;

associating in the database the context-activity pair information with appropriate recommendations made in the past to many users.

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39. The method of claim 38, which further comprises:

making new recommendations to the user in response to the context-activity pair information submitted by the wireless device; and

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gathering the new recommendations and adding them to the database;

whereby the variety, quality and pertinence of the recommendations in the database grows as the recommendation system is used.

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40. The method of claim 39, which further comprises:

compiling statistical usage information about the recommendations and storing the usage information in the database.

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41. The method of claim 40, which further comprises:

providing the statistical usage information to the wireless device accompanying the recommendations.

42. The method of claim 41, which further comprises:

filtering the recommendations received at the wireless device by using the statistical usage information accompanying the recommendations.

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43. The method of claim 42, wherein said providing step further comprises:

filtering the recommendations at the wireless device using statistical usage information associated with the recommendations.

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44. The method of claim 43, wherein said providing step further comprises:

accessing a history log of previous recommendations provided to the user;

- filtering new recommendations from the previous recommendations and providing the new recommendations to the user.
- 5 45. The method of claim 44, wherein said providing step further comprises:
- accessing a history log of previous recommendations provided to the user, including ratings of the previous recommendations;
 - 10 filtering recommendations using the ratings and providing the filtered recommendations to the user.